



Due to the small number of specimens known, it is impossible to determine the degree of its abundance or the extent of its distribution. Apparently it is restricted to a rather narrow region, the present known range encompassing only 60 miles along the east coast of Baja California, from Santa Rosalia south to El Coyote. It is hoped that the extensive shore collecting and deep-water dredging now being done in the Gulf of California will bring to light additional information about this form.

It is important to note the fact that the typical Cypraea annettae is uniform in its appearance; of a great number of specimens examined, not one was seen to deviate more than minutely from the typical form, even in smaller and younger specimens, so that the different appearance of the variant is more than ever noticeable. When mingled with a large group of typical C. annettae, the six specimens of the different form stood out from the rest in a

species C. gambiensis Shaw, 1909; even the late Lloyd E. Berry, with his large collection of worldwide Cypraea, confused the Gulf of California specimens with this rare species.

The dorsal area of the shell has a mottled appearance, with fulvous and chestnut-brown markings rather unevenly applied. The color and pattern somewhat resemble those of Cypraea annettae, and the lateral marginal spots are seen in both forms. However, the color is darker in C. annettae in all parts of the shell; also the interior of C. annettae is purple, whereas in this form it is cream color.

Morphologically the variant seems quite different from Cypraea annettae (Plate 24, figures 2a, 2b); even small specimens of C. annettae, of similar size, are narrower and more elongate. Therefore, the relationship between the two forms seems distant enough to make it worthy of further study.

DIFFERENCES BETWEEN TYPICAL SPECIMENS OF BOTH FORMS

variant

small, pyriform
margins sharply angled
margins thickened, extending high onto shell
extremities compressed
aperture narrow, acute

teeth small, fine, less numerous (C = 13, L = 15)

color pattern thinly distributed, paler
base color fleshy beige
interior cream color

Cypraea annettae

large, elongate, cylindrical
generally cylindrical
margins more narrowly thickened or not at all
extremities produced
aperture nearly straight, more declivous anteriorly

teeth larger, stronger, more numerous (C = 20, L = 21)

color pattern more fused, darker
base color darker peach color
interior deep lavender

striking way.

The extent to which this shell differs from typical Cypraea annettae may be evaluated when I mention that I showed it to several competent conchologists, none of whom associated it with C. annettae. As a matter of fact, it bears a remarkable resemblance to the West African

I decided to carry my investigation beyond the obvious visual aspects and computed the average measurements of all the specimens in both groups as well as the obesity index (= width x 100: length) and other ratios (height x 100: length and height x 100: width); the results were:

Table 1: Mean Measurements and Ratios of *Cypraea annettae* and Variant

	Length	Width	Height	Ratios:	Width : Length	Height : Length	Height : Width
Variant:	25.96	16.56	12.80 mm.		63.84	49.48	77.51
<i>Cypraea annettae</i> :	35.26	20.10	16.00 mm.		57.43	45.51	79.29

It was then decided to try a more critical analysis, and a standard deviation study was made. However, with only six specimens to work with as against a series of 32 *Cypraea annettae*, it was almost a foregone conclusion that the results would give only a very general idea of the deviation.

There are many approaches one may take in quantitative analysis. I chose the so-called 90 percent method, whereby if population "B" can be proved to be composed of 90 percent of the new form based on the measurements and ratio figures, and assuming that the population "A" or *Cypraea annettae* maintains 100 percent of normal species characteristics, the variant could then be considered a subspecies or even possibly a separate species.

To be brief, despite the imbalance in numbers of specimens of both species used in this study, the over-all picture developed reasonably well. However, even if the desired 90 percent had been the result, many other factors would still have to be considered before the results could be called conclusive. The final answer will have to come from future collections to be made in the vicinity of Concepcion Bay.

I have no plan to propose or even suggest

taxonomic recognition for this variant at the present time. This is merely an effort to study it, to analyze its distinguishing characters, to pinpoint its locality, and to encourage collectors to be on the lookout for it in the Gulf of California. To carry the study any further taxonomically at this time would be hasty, merely adding another name to the already crowded nomenclature in Cypraeidae.

There is an urgent need for a far greater number of specimens for consideration so that a reasonably accurate coefficient of deviation can be determined and compared with that of a like number of typical *Cypraea annettae*. Until this can be accomplished, it should be considered merely a local ecological variant.

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